

Application Serial No. 10/573,975
Amendment filed February 22, 2010
Reply to Office Action mailed October 22, 2009

REMARKS

Claims 15 and 19-28 are pending in this application. Claims 15, 19-22, 24, and 27 are amended herein. Claims 16, 17, and 18 are canceled herein without prejudice or disclaimer. Support for the amendments may be found in the claims as filed originally, and at paragraph [0014] of the specification. Reconsideration is requested based on the foregoing amendment and the following remarks.

Claim Rejections - 35 U.S.C. § 103:

Claims 15, 19, 20, and 22-28 were rejected under 35 U.S.C. § 103(a) as unpatentable over WIPO Publication No. WO 02/078382 to Bergendorff (hereinafter "Bergendorff") in view of US Patent Application Publication No. 2005/0099942 to Kurihara (hereinafter "Kurihara"). The rejection is traversed to the extent it might apply to the claims as amended. Reconsideration is earnestly solicited.

In the claimed invention, for determining the position of a first mobile radio communication device using the position information of neighboring second mobile radio communication devices, before emitting a retrieval signal, a preceding inquiry signal is emitted from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio communication terminal device and after that the first mobile radio communication terminal device transmits, after receipt of an acknowledgement signal, a retrieval signal retrieving position information of the second mobile radio communication terminal device that sent the received acknowledgement signal.

The second and third clauses of claim 15, in particular, recite:

Before emitting a retrieval signal, emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio terminal device; transmitting, from the first mobile radio communication terminal device, after receipt of an acknowledgement signal, a retrieval signal retrieving position information of the second mobile radio communication terminal device that sent the received acknowledgement signal.

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Thus, the effect can be attained that the retrieval signal is only sent to the second radio communication terminal device, from which the readiness to participate in the position determination has been indicated after receipt of the respective acknowledgement signal. This feature has the advantage that it is possible for the first mobile radio communication terminal device, for example, to only take into consideration the most accurate information in its position determinations, if it receives a very large number of response signals from a large number of second mobile radio communication terminal devices.

The Office Action acknowledges graciously in section 7, at the bottom of page 8, continuing at the top of page 9, that Bergendorff and Kurihara "does not teach before the emitting an inquiry signal, emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio device," and attempts to compensate for this deficiency of Bergendorff nor Kurihara by combining them with U.S. Patent No. 6,836,653 to Kang (hereinafter "Kang"). Kang, however, does not relate to the transmission of positioning information between two mobile communication devices either, and thus cannot make up for the deficiencies of either Bergendorff or Kurihara with respect to the claimed invention.

It is submitted, therefore, that a person of ordinary skill in the art taking into account the knowledge of Bergendorff and Kurihara and trying to optimize the determination of the position of the first mobile radio communication device, wherein the positioning information, which is received by the first mobile communication device, is transmitted by a large number of second mobile radio communication devices to the first mobile radio communication device, would not get any hint from Kang how to solve this problem.

The Office Action asserts in section 7, at page 9, that:

Kang teaches before the emitting an inquiry signal, emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio device (A method of applying a charge rate to a mobile station comprises a 1st mobile station requesting for a 2nd mobile station to confirm whether or not it is in a specific zone before the 2nd mobile location information is sent/determined, where the acknowledgement is made through transmission of subscriber information pertaining to the 2nd mobile station, Column 6, lines 7-10 and Column 10, lines 27-44).

However, a difference between subject of the additional features of amended claim 15 and Kang is that in Kang the information of the location of the second mobile station is not transmitted to the first mobile station, but to the second base station or the second base station controller or the second mobile switching centre, which are all not part of the first mobile station (please refer to col. 6, lines 7 to 10, col. 40 to 44). Hence, the transmission of the location information between a first and a second mobile radio communication device is not described by Kang.

Further, in Kang, the second mobile station is not requested to send “an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio device”, since the position of the first mobile radio device is not relevant for determining the charge rate, if the second mobile station is located in its home zone or not, which is the information, which is relevant for determining the charge rate.

Furthermore, Kang does not give any hint for “emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio device”, since the telephone call in Kang is merely performed between two mobile stations.

Consequently, the method of Kang for the purpose of a proper billing would not get any hint how to solve the above-mentioned problem of optimizing the determination of the position of the first mobile radio communication device.

Since Kang merely deals with the proper billing at the end of a telephone call and by contrast, the method according to amended claim and also Bergendorff and Kurihara discuss the problem of determining the position of a radio communication device, which proceeds completely without a telephone call between the users of the radio communication devices, a person skilled in the art would not have any motivation to consult Kang for improving references such as Bergendorff and Kurihara.

Thus, Kang does not disclose “before emitting a retrieval signal, emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio

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terminal device," and "transmitting, from the first mobile radio communication terminal device, after receipt of an acknowledgement signal, a retrieval signal retrieving position information of the second mobile radio communication terminal device that sent the received acknowledgement signal" either, and thus cannot make up for the deficiencies of either Bergendorff or Kurihara with respect to claim 15.

The Office Action, in any case, goes on to assert in section 7, at page 9, that:

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Bergendorff to have the second mobile station send this type of response signal for the purpose of proper billing and time efficiency.

The Office Action, however, acknowledged in section 7, at the bottom of page 8, continuing at the top of page 9, that Bergendorff and Kurihara "does not teach before the emitting an inquiry signal, emitting a preceding inquiry signal from the first mobile radio communication terminal device requesting that each second mobile radio communication terminal device send an acknowledgement signal indicating a readiness thereof to participate in determination of the local position of the first mobile radio device," not proper billing and time efficiency. There is no reason to believe, in fact, based on the disclosures of either Bergendorff or Kurihara, that they were lacking in the area of proper billing and time efficiency. It is submitted, therefore, that persons of ordinary skill in the art at the time the invention was made would not have modified Bergendorff and Kurihara as *proposed* in the Office Action, since the modification would not have compensated for the deficiency of Bergendorff and Kurihara *identified* in the Office Action.

The fourth and fifth clauses of claim 15 recite:

Transmitting position information by at least one radio signal from at least one second mobile radio communication terminal device, the location of which is known either to the at least one second mobile radio communication terminal device or to the radio network, and which is either in the radio cell or in another radio cell, the at least one radio signal being transmitted to the first mobile radio communication terminal device via either a direct radio connection or an indirect radio connection via the radio network.

And:

Inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal.

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The Office Action acknowledges graciously in section 6, at the top of page 4, that:

Bergendorff does not teach inferring a distance between the first mobile radio communication terminal device and the at least one second mobile communication terminal device on the basis of the signal propagation time of the at least one radio signal.

The Office Action seeks to compensate for this deficiency of Bergendorff with respect to claim 15 by combining Bergendorff with Kurihara, asserting further in section 6, at page 4, that:

Kurihara teaches inferring a distance between the first mobile radio communication terminal device and the at least one second mobile communication terminal device on the basis of the signal propagation time of the at least one radio signal (**A distance between a first and second wireless unit is obtained from a signal propagation time between said first and second wireless unit, Paragraph 29.**)

This is submitted to be incorrect. Most of the embodiments described in Kurihara refer to a WLAN-system, in which a determination of a location of a wireless communication unit is performed by measuring the distance between the wireless communication unit and one or more base stations. This is to be contrasted with claim 15, which recites "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," and in which "the at least one radio signal" is "from at least one second mobile radio communication terminal device."

Kurihara even teaches away from the subject matter of claim 15, since Kurihara suggests that direct determination of the distance between two wireless communication units is only performed if a base station is not part of the network at all, since in all of the embodiments in which a base station is part of the network, the determination of the position of the first wireless communication unit is done by measuring the distance between the first wireless communication unit and one of a plurality of base stations. Therefore, Kurihara describes determining the position of wireless communication unit in the cellular network by measuring the distance between the wireless communication unit and one or more base stations, not by "a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," and in which "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

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In Kurihara, moreover, the *base* station measures a distance therefrom to each of other wireless units. In particular, as described at paragraph [0059]:

FIG. 7 is a view illustrating various ranges used when a base station (that is, a ranging-signal transmitting wireless unit) measures a distance therefrom to each of other wireless units.

Since, in Kurihara, the base station measures a distance therefrom to each of other wireless units, Kurihara is not "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

In Kurihara, moreover, an application program is switched according to the relative distance between the terminal and each of the plurality of *base* stations. In particular, as described at paragraph [0061]:

FIG. 9 is a view illustrating a manner in which the interconnection relation between a terminal and each of a plurality of base stations is communicated and the processing to be performed by executing an application program is switched according to the relative distance between the terminal and each of the plurality of base stations.

Since, in Kurihara, an application program is switched according to the relative distance between the terminal and each of the plurality of base stations, Kurihara is not "a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

Kurihara, moreover, is measuring the pseudoranges thereof from three or more *base* stations. In particular, as described at paragraph [0062]:

FIG. 10 is a view illustrating a manner in which the two-dimensional position of a terminal is determined by measuring the pseudoranges thereof from three or more base stations in a case that the two-dimensional coordinates of each of the base stations are known.

Since Kurihara is measuring the pseudoranges thereof from three or more base stations, Kurihara is not "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of

the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

In Kurihara, moreover, a *base* station measures the distance therefrom to each of other terminals. In particular, as described at paragraph [0076]:

FIG. 7 shows various ranges used when a base station measures the distance therefrom to each of other terminals. In this case, there are one wireless base station, two wireless terminals, and two objects. These objects can physically reflect ranging-signal radio waves sent from the base station.

Since, in Kurihara, a base station measures the distance therefrom to each of other terminals, Kurihara is not "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

In Kurihara, moreover, the first wireless unit, which is a *base* station as described at paragraph [0059], measures a distance between the first wireless unit and the second wireless unit according to a propagation time between the first wireless unit and the second wireless unit. In particular, as described at paragraph [0029]:

In this system, the first wireless unit measures a distance between the first wireless unit and the second wireless unit according to a propagation time between the first wireless unit and the second wireless unit.

Since, in Kurihara, the first wireless unit measures a distance between the first wireless unit and the second wireless unit according to a propagation time between the first wireless unit and the second wireless unit, Kurihara is not "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

In Kurihara, moreover, the propagation time is obtained from an elapsed time since the first wireless unit, which is a *base* station as described at paragraph [0059], transmits the ranging signal. In particular, as described further at paragraph [0029]:

The propagation time is obtained from an elapsed time since the first wireless unit transmits the ranging signal.

Since, in Kurihara, the propagation time is obtained from an elapsed time since the first wireless unit transmits the ranging signal, Kurihara is not "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile radio communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile radio communication terminal device," as recited in claim 15.

Kurihara, finally, teaches away from claim 15 by describing the classical distance measuring between the base station and a terminal, wherein the signal for measuring the distance comes from the base station, as it is measured in the case of a conventional RTT method, for example. In particular, as described at paragraph [0079]:

A one-way wave propagation time of the wave propagating from the base station to the terminal is defined as a propagation time X. A value obtained by multiplying this value X by the velocity of light is calculated as an absolute distance between the base station and the terminal.

Furthermore, as can be seen from Figs. 7, 9, and 10 of Kurihara, the local area networks are star-shaped, and a direct communication between mobile devices, without measuring the distance between the terminal and the base station, is not provided. The invention of claim 15, on the other hand, provides a more flexible and more exact localization of the mobile communication devices than the combination of Bergendorff and Kurihara proposed in the Office Action. Claim 15 is submitted to be allowable. Withdrawal of the rejection of claim 15 is earnestly solicited.

Claims 19, 20, and 22-26 depend from claim 15 and add further distinguishing elements. Claim 19, for example, recites:

The preceding inquiry signal is a broadcast radio signal.

Neither Bergendorff, Kurihara, nor Kang teaches, discloses, or suggests "the preceding inquiry signal is a broadcast radio signal," as recited in claim 19. The Office Action, in fact, acknowledges that neither Bergendorff nor Kurihara describe the use of "the preceding inquiry signal," and Kang does not give any hint for the sending of a preceding inquiry signal as a broadcast signal. Quite the contrary, since Kang merely describes a telephone call between two mobile stations, a preceding inquiry signal as a broadcast signal would not make any sense in

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this context. Hence, Kang would even teach away from sending a preceding inquiry signal as a broadcast signal.

Claims 19, 20, and 22-26 are thus also submitted to be allowable. Withdrawal of the rejection of claims 19, 20, and 22-26 is also earnestly solicited.

Claims 27 and 28:

The second and third clauses of claim 27 recite:

An inquiry unit for requesting information of readiness to participate in the position determination and position information from at least one mobile radio communication terminal device located in a radio cell of a radio network of a radio communication system or in a different radio cell, wherein the radio cells are fixed by base stations, a position of the at least one mobile radio communication terminal device being known to either the at least one mobile radio communication terminal device or to the radio network;
A receiving unit receiving at least one radio information signal respectively from the at least one mobile radio communication terminal device and evaluating the received at least one radio information signal, each radio information signal including acknowledged information of the readiness to participate in the position determination or position information of the known position of the respective at least one mobile communication terminal device sending the radio information signal.

Neither Bergendorff, Kurihara, nor Kang teaches, discloses, or suggests "requesting information of readiness to participate in the position determination and position information from at least one mobile radio communication terminal device located in a radio cell of a radio network of a radio communication system or in a different radio cell, wherein the radio cells are fixed by base stations, a position of the at least one mobile radio communication terminal device being known to either the at least one mobile radio communication terminal device or to the radio network," and "receiving at least one radio information signal respectively from the at least one mobile radio communication terminal device and evaluating the received at least one radio information signal, each radio information signal including acknowledged information of the readiness to participate in the position determination or position information of the known position of the respective at least one mobile communication terminal device sending the radio information signal," as discussed above with respect to the rejection of claim 15.

The last clause of claim 27 recites:

Wherein a distance between the radio communication terminal device and the at least one mobile radio communication terminal device is inferred on the basis of the signal propagation time of the at least one radio signal.

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Bergendorff neither teaches, discloses, nor suggests "wherein a distance between the radio communication terminal device and the at least one mobile radio communication terminal device is inferred on the basis of the signal propagation time of the at least one radio signal," as discussed above with respect to the rejection of claim 15. Claim 27 is thus also submitted to be allowable, for at least those reasons discussed above with respect to the rejection of claim 15. Withdrawal of the rejection of claim 27 is earnestly solicited.

Claim 28 depends from claim 27 and adds further distinguishing elements. Claim 28 is thus also submitted to be allowable. Withdrawal of the rejection of claim 28 is earnestly solicited.

Claim 21:

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Bergendorff and Kurihara in view of U.S. Patent No. 6,836,653 to Kang (hereinafter "Kang"). The rejection is traversed. Reconsideration is earnestly solicited.

Claim 21 depends from claim 15 and adds further distinguishing elements. Neither Bergendorff nor Kurihara teaches, discloses, or suggests "inferring a distance between the first mobile radio communication terminal device and the at least one second mobile communication terminal device on the basis of the signal propagation time of the at least one radio signal," where "the at least one radio signal" is "from at least one second mobile communication terminal device," as discussed above with respect to the rejection of claim 15. Kang does not either, and thus cannot make up for the deficiencies of either Bergendorff or Kurihara with respect to claim 21 in any case. King, rather, merely describes a method for applying differing charging rates on the basis of location information. Thus, even if Bergendorff, Kurihara, and Kang were combined as proposed in the Office Action, claim 21 would not result. Claim 21 is thus also submitted to be allowable. Withdrawal of the rejection of claim 21 is earnestly solicited.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all of claims 15 and 19-28 are allowable over the cited references. Allowance of all claims 15 and 19-28 and of this entire application is therefore respectfully requested.

If there are any formal matters remaining after this response, the Examiner is invited to telephone the undersigned to attend to these matters.

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If there are any additional fees associated with filing this Amendment, please charge them to our Deposit Account No. 19-3935.

Respectfully submitted,

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